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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/585,682	06/01/2000	Kei-Yu Ko	3526.2US (97-1136.2)	7481

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EXAMINER

CHU, CHRIS C

ART UNIT	PAPER NUMBER
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2815

DATE MAILED: 11/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/585,682

Applicant(s)

KO ET AL.

Examiner

Chris C. Chu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1 - 13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 - 13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 June 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Appeal Brief***

1. In view of the appeal brief filed on July 17, 2002, PROSECUTION IS HEREBY REOPENED. A new ground of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

- (1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,
- (2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following limitation in claim 11 “an insulative cap over a conductive line” must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

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A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3. Applicant is required to submit a proposed drawing correction in reply to this Office action. However, formal correction of the noted defect may be deferred until after the examiner has considered the proposed drawing correction. Failure to timely submit the proposed drawing correction will result in the abandonment of the application.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

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5. Claims 1 ~ 10 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Lou et al.

Regarding claim 1, Lou et al. discloses in Fig. 3C a semiconductor device, comprising:

- a semiconductor substrate (31) including an active device region;
- at least one conductive line (34) disposed upon said active device region, said at least one conductive line being flanked by sidewall spacers (35);
- an undoped silicon dioxide cap (41) disposed over and in contact with said at least one conductive line;
- a passivation layer (42) over said undoped silicon dioxide cap; and
- at least one contact aperture (45) defined through said passivation layer and including at least one sidewall extending substantially perpendicularly relative to said semiconductor substrate, at least a portion of said at least one sidewall terminating at said undoped silicon dioxide cap.

As to the language on line 2 of claim 2, “a word line”, applicant should note that this is merely function language which does not differentiate the claimed apparatus from Lou et al.

Regarding claim 3, Lou et al. discloses said passivation layer (42) comprising doped silicon dioxide.

Regarding claim 4, Lou et al. discloses in column 6, lines 33 ~ 34 said passivation layer comprising borophosphosilicate glass, phosphosilicate glass, or borosilicate glass.

Regarding claim 5, Lou et al. discloses said undoped silicon dioxide cap being at least partially exposed through said at least one contact aperture.

Regarding claim 6, Lou et al. discloses in Fig. 3C a semiconductor device, comprising:

- a semiconductor substrate (31);
- at least one undoped silicon oxide structure (41); and
- at least one doped silicon oxide structure (42) over said at least one undoped silicon oxide structure and having at least one sidewall substantially perpendicular to a plane of said semiconductor substrate, at least a portion of said at least one sidewall terminating at said at least one undoped silicon oxide structure.

Regarding claim 7, Lou et al. discloses in Fig. 3C said at least one sidewall comprising a sidewall of an aperture.

Regarding claim 8, Lou et al. discloses in Fig. 3C said at least one sidewall at least partially defines an aperture (45) through said doped silicon oxide structure.

Regarding claim 9, Lou et al. discloses in column 6, lines 33 ~ 34 said at least one doped silicon oxide structure comprising borophosphosilicate glass, phosphosilicate glass, or borosilicate glass.

Regarding claim 10, Lou et al. discloses in Fig. 3C said at least one undoped silicon oxide structure being at least partially located over a conductive structure.

Regarding claim 13, Lou et al. discloses in Fig. 3C said at least one undoped silicon oxide structure being at least partially exposed adjacent said at least one sidewall.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lou et al. in view of Wang et al.

Regarding claim 11, Lou et al. discloses the claimed invention except for said at least one undoped silicon oxide structure comprising an insulative cap over a conductive line. However, Wang et al. teaches in Fig. 1 and column 5, lines 19 and 20 said at least one undoped silicon oxide structure comprising an insulative cap over a conductive line. Thus, it would have been obvious to one of ordinary skill in the art at the time when the invention was made to modify Lou et al. by using the insulative cap as taught by Wang et al. The ordinary artisan would have been motivated to modify Lou et al. in the manner described above for at least the purpose of protecting gate electrodes.

Regarding claim 12, Wang et al. discloses in Fig. 1 said insulative cap being partially exposed through an aperture of said at least one doped silicon oxide structure defined by said at least one sidewall.

### *Response to Arguments*

8. Applicant's arguments with respect to claims 1 ~ 13 have been considered but are moot in view of the new ground(s) of rejection.

*Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ngo recites in column 1, lines 28 and 29 undoped silicon glass (USG) film is known as undoped silicon dioxide film.

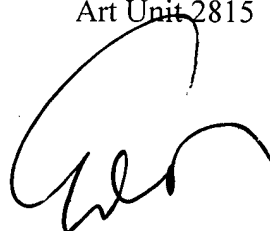
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chris C. Chu whose telephone number is (703) 305-6194. The examiner can normally be reached on M-F (10:30 - 7:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (703) 308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7382 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Chris C. Chu  
Examiner  
Art Unit 2815

c.c.  
November 15, 2002



EDDIE LEE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800